

Exhibit Companion

Grades 6 – 8

Topic: Ocean Conservation

Created by the New Jersey Academy for Aquatic Sciences
Education Partners of Adventure Aquarium

1 Riverside Drive
Camden, NJ 08103-1037
www.njaas.org

**For more information, visit AdventureAquarium.com
Call 800.616.JAWS to make a group reservation**



About this Guide:

Thank you for booking a trip to Adventure Aquarium! This Exhibit Companion contains information and activities to enhance your visit, adding more educational value to an already exciting experience for you and your students. This companion was created to reinforce topics you are already studying in your classroom and stimulate conversations before, during and after your trip to the Aquarium. It is recommended that you read over the packet in its entirety, and distribute the “**At the Aquarium**” section to your chaperones. This section contains discussion questions to be asked at various exhibits throughout the Aquarium, as well as “Not to Miss” exhibits and shows.

For many of your students, this is their first visit to Adventure Aquarium and they may be interacting with animals that they have never seen before. With the help of you and your chaperones, their visit will be filled with fun and learning, and will be an experience they will never forget.

Adventure Aquarium is divided up into four areas, called Zones, to help you easily find your way around the building. This Exhibit Companion is also set up by Zone. The sections of the guide refer to exhibits found in each Zone and how they relate to the topic of this Companion. You may find other exhibits that also relate to the topic while touring the Aquarium. Please have your students and chaperones stop at each one to discuss the animals and their exhibit. Your students will gain more from your trip by taking the time to look, listen, and experience each exhibit, rather than racing through the building!

Adventure Aquarium is constantly updating and adding to our exhibits and collections. Please refer back to these documents prior to each visit, as they will also be updated to reflect changes at Adventure Aquarium.

**For more information, visit AdventureAquarium.com
Call 800.616.JAWS to make a group reservation**



This Guide Includes:

- Activities to prepare your students for their visit and to reinforce topics addressed after they have visited.
- Descriptions of the exhibits that will be the focus of this Exhibit Companion and the animals they contain. Please note: while we make every effort to keep the animal list up to date, we are always adding to and adjusting our collections. Please ask an Adventure Aquarium cast member if you are unsure about the identity of a particular animal. We are always happy to help.
- Discussion questions about the animals and conservation status of the animals in these exhibits.

Objectives:

After the visit, students will be able to:

- Understand the terms conservation, endangered, threatened and vulnerable.
- Understand what an invasive species is and name several examples.
- Recognize ways in which they can protect and conserve the oceans.

Standards:

New Jersey 5.1A, 5.1D, 5.3A, 5.3B, 5.3C, 5.3E, 5.4G

Pennsylvania 3.1.1.A2, 3.1.3.A2, 3.1.2.C2, 3.1.3.C1

Delaware SS6, SS7, SS8

**For more information, visit AdventureAquarium.com
Call 800.616.JAWS to make a group reservation**

Background Information – Ocean Conservation

CONSERVATION refers to the protection of animals, fungi, plants and their habitats, and the protection and management of the biodiversity of our planet. According to the Environmental Protection Agency “there are approximately 1300 endangered or threatened species in the United States today.

Endangered species are those plants and animals that have become so rare they are in danger of becoming extinct. **Threatened** species are plants and animals that are likely to become endangered within the foreseeable future throughout all or a significant portion of its range.” An **extinct** species is one that no longer exists and a species is considered extinct upon the death of the last individual. Some species are extinct in the wild, and can only be found in zoos or aquariums.

Some examples of endangered animals include:

- Giant Panda
- Blue Whale
- Mountain Gorilla

Some examples of threatened animals include:

- Maned Wolf
- European Otter
- Sooty Falcon

Some examples of animals that became extinct due to human interference include:

- Stellar Sea Cow
- Passenger Pigeon

An **invasive species** is an animal or plant that has been introduced into a habitat, either accidentally or on purpose, and causes environmental harm or affects human use of natural resources. When the local environment is unable to handle these non-native species, they can overuse native resources and out-compete native species for territory, food, or space. Often, these invasive species have no predators in their new habitat, and are able to easily adapt to their new homes.

A few examples of invasive species include:

- Burmese Python
- Cane Toad
- Snake Head fish
- Zebra Mussel



Preparing for Your Visit:

*In addition to using this guide, you can enhance your visit with a specially themed educational program. Ask about scheduling **Sharks**, **Built for Change**, **Conservation Connections**, or a **Behind the Scenes Tour**.*

A little preparation before the day of your field trip can set expectations and prepare your students to make the most of the visit. Visit www.adventureaquarium.com and view the map. Familiarize yourself with the layout of the Aquarium, and advise your chaperones to do the same. It is easier to find the exhibits you will be focusing on if you know where you will be going and what shows and classes you will be attending, if any. A handout of the daily show schedule is available at the information desk.

Adventure Aquarium has a several animals that are listed as threatened or endangered. Discuss these terms with your students, and have them research an example of an endangered animal. Have students write an article about their animal, and answer the following questions:

- How did the animal become endangered? Was it hunted? Did it lose its habitat?
- Does the animal live in multiple places in the world, or is it only found in a small area?
- What are the specific needs of the animal? Can it find these needs in other places?
- What is being done to help this animal, if anything?
- Is this animal found in zoos or aquariums? Is it part of a captive breeding program?

Have your students compile their articles into an “Endangered Species Newspaper”. Include pictures of the animals. Copy and distribute your newspaper to your class and other classes in your school.

**For more information, visit AdventureAquarium.com
Call 800.616.JAWS to make a group reservation**

At the Aquarium:

While at the Aquarium, your students will be examining the different animals and discussing their conservation status. Below are some different exhibits containing endangered, threatened, or animals of interest that you will find at the Aquarium and questions (indicated by a “light bulb”) that you can ask your students while looking at the exhibits. The exhibits are broken down by Zone.

Zone A – [Caribbean Currents](#) and [Ocean Realm](#)

Hard Case – [Diamondback Terrapins](#) are the only brackish water (where salt and fresh water come together) turtles in the US and can be found living along saltwater marshlands in New Jersey and along the East Coast. Once near extinction, this species was considered a delicacy.



Today, terrapins are often caught in crab traps and drown. Female terrapins are often hit by cars as they cross roads to lay their eggs in sandy areas above the waterline. Although many of these females are killed every year, their bodies can still contain viable eggs. College students and other volunteers patrol the roads during turtle nesting season and rescue the eggs. These are incubated until hatching and the babies are kept and fed until they are a year old, giving them a head start, and then released.

- 💡 Why do you think the eggs are able to be saved? Do you think all of the eggs that are rescued will hatch?
 - *The mother’s shell protects the eggs from being crushed by the cars, however because the females lay their eggs in the spring and summer, some eggs do not survive the heat of sun.*
- 💡 How else do you think people can help the terrapins?
 - *Crab traps are required to include a turtle excluder device (TED) that allows the turtles to escape the traps but keeps the crabs in them. In some areas, turtle fences are being built to prevent the turtles from crossing the street.*

[Ocean Realm](#) – Of the seven species of sea turtles that live in our oceans, all of them are listed as either “Threatened” or “Endangered.” Sea turtles face a variety of threats in the wild, including becoming by-catch in fishing nets and lines, destruction of the beaches where they lay their eggs, and being poached for their meat for food and shells to make jewelry and clothing. Some turtles mistake plastic bags and balloons for food items like jellyfish. Artificial lighting also causes hatchling turtles to mistake house lights for the light of the moon, thus getting confused and traveling away from the safety of the ocean. Baby turtles often become prey to pets, suffer dehydration, or run the risk of getting hit by cars because the light of houses outshines the light of the moon.

**For more information, visit AdventureAquarium.com
Call 800.616.JAWS to make a group reservation**

Adventure Aquarium is home to two species of sea turtle – [Green](#) and [Loggerhead](#) – and both are endangered and can be found off the coast of New Jersey.

- 💡 What is something people can do to help baby turtles find their way to the ocean?
 - *People who live on beaches where turtles lay their eggs should turn their lights off at night, especially when the turtles are hatching. This will allow the babies to find their way to the ocean and not confuse the house lights for moon light.*
- 💡 Why is something like a fishing net or line a hazard for animals like sea turtles?
 - *Sea turtles need to surface to breathe air using their lungs. Turtles that get caught in fishing lines or nets often get tangled, are unable to surface and therefore drown.*

Zone B – [Penguin Island](#)

There are 17 species of penguin, and 13 of them are listed as either “Endangered” or “Threatened”. All species of penguins are protected from hunting and egg collecting. However, there are other factors that cause penguins to remain on the endangered list. These include oil spills, pollution, habitat destruction, overfishing, and careless boating.



Adventure Aquarium’s penguins are [African Black-footed penguins](#). These penguins are part of the Species Survival Program (SSP), a zoo and aquarium captive breeding and management program that tries to preserve species, most of which are threatened or endangered in the wild. At the current rate of population decline, African Penguins could become extinct in the wild within the next 15 years.

- 💡 African penguins are in trouble because people collect their guano, or poop. Why do you think this is a problem for the penguins, and why do you think people would want the penguin waste in the first place?
 - *Guano is rich in nutrients and is often used as fertilizer. People collect it to spread it on their crops to make them healthier. The penguins use the guano to hold their nests of sticks and rocks together. Without the sticky guano, the eggs roll out of the nests and the chicks inside them will die.*
- 💡 Why do you think overfishing is a cause of a decrease in the penguin population?
 - *People and penguins like to eat the same kind of fish. When people fish in the same waters that the penguins depend on for their food, penguins have to go further from their nesting areas to find food, or must rely on less-nutritious sources of food. Going further from the nest means a greater chance of running into predators, or not having enough energy to return to the nest to take care of baby penguins.*

Zone C – [KidZone](#)

For more information, visit AdventureAquarium.com
Call 800.616.JAWS to make a group reservation

Lionfish – Lionfish are native to Indo-Pacific waters and can often be found on reefs or on the fringes of reefs and rocky lagoons. They feed on small fish and invertebrates. A popular aquarium fish, this animal has venomous rays that it uses for defense from predators.

This is an example of an invasive species. Thought to be accidentally introduced in the waters off the East Coast of the United States in the late 1980's-early 1990's, lionfish reproduce quickly. They have few predators, and are very aggressive. Studies have shown lionfish to take over native fish habitats, driving the native fish into less desirable areas of the reef.

- 💡 What are some of the ways you think the lionfish was introduced into the waters off the East Coast?
 - *Although we do not know how the lionfish were introduced, some theories include accidental release due to a hurricane and deliberate release by home aquarists who could no longer keep the fish in their personal aquarium.*
- 💡 Do you think it is possible for people to remove all of the lionfish from their non-native habitat?
 - *While some organizations are working to eliminate lionfish from the reefs off the East Coast of the US through collecting and fishing, the lionfish reproduce very quickly. It may not be possible for us to collect them faster than they can repopulate.*

Bangaii Cardinalfish – The Bangaii Cardinalfish is a small, shallow-water reef fish found in only one area of the world. They are a popular home aquarium fish, and unlike most marine fish, they produce a very small number of eggs, which the males incubate in their mouths. After hatching, the embryos remain in the parent's mouth until they complete their development. This means very few fish survive to become adults.



In the wild, the Bangaii Cardinalfish is found only in a very limited area of Indonesia. Unfortunately, their small population is being over-exploited. The fish are easy to catch and slow to reproduce and are being collected faster than they can replenish the population.

- 💡 Do you think that a large number of Bangaii Cardinalfish that are collected in Indonesia survive the trip to pet stores in the United States?
 - *Estimates suggest that more than half of the Bangaii Cardinalfish collected in Indonesia die or are discarded due to injury or damage before they make it into the pet trade.*
- 💡 Do you think a small fish like the Bangaii Cardinalfish is important enough to be saved?
 - *This is really a matter of opinion, but all species, large and small, fulfill some role in their habitat*

Zone D – [West African River Experience](#) and [Shark Realm](#)

Green Sawfish – [Green Sawfish](#) are critically endangered in the wild, primarily because they are easily caught in fishing nets where removal without injury to the animal is difficult. They are also hunted for their “saw,” which is sold for souvenirs or used in traditional medicines.

Adventure Aquarium’s Green Sawfish can be found in the Shark Realm exhibit. Its long rostrum is used to help them stun their prey. It will swim through schools of fish, waving its saw-like nose back and forth, stunning animals that they will then scoop up off the bottom of the ocean floor.



- 💡 Why do you think the sawfish gets caught so easily?
 - *Sawfish are slow swimmers, stay near the bottom, and their saw-like rostrum often gets tangled up in nets and fishing line, making it hard to remove.*

- 💡 Why do you think animals like the Green Sawfish are important to have at places like Adventure Aquarium?
 - *Many people would never see a Green Sawfish in the wild. By having it at the Aquarium, we can teach people about this animal. Perhaps by seeing it here, they will gain appreciation and curiosity about it, learn to respect or even care for it, and want to do something to protect it.*



Don't Miss:

Touch Exhibits

- Please Note: Touch exhibits close for 15 minutes every hour to give our animals a well-deserved break. If the exhibit is closed upon your arrival, please check with a cast member at the exhibit to see when it will be re-opened.
- Review with your students prior to arrival the best way to touch our animals. For all exhibits, we encourage a "two-finger" touch, gently on the animal's back. Listen for more tips from cast members at the exhibit.

[Touch-A-Shark](#) – Our touchable sharks are bottom-dwelling carpet sharks. These species have flat teeth, like your molars, that are good at crushing the shells of the animals that they eat, such as crabs, snails and clams. They are nocturnal (active at night) and most never grow larger than three feet.

[Gill's Grotto](#) – In Gill's Grotto there are three touch exhibits to experience. Here you can touch small sea stars, cleaner shrimp, anemones, and other coral reef dwellers as well as horseshoe crabs and lobsters.

[Stingray Beach Club](#) – Touchable stingrays glide past this multi-level exhibit, with touch areas for both tall and small visitors.

[Creature Feature](#) – This touch pool is teeming with creatures from the rocky shores of the Pacific Northwest. On the second floor of Adventure Aquarium, next to Irazu Falls, students will have the chance to see and touch slick, slimy and all-around cool invertebrates, such as several species of exotic and colorful seastars (including the beautiful Purple Ochre Star), anemones, crabs, snails and so much more.

Shows and Feedings – *please check your show schedule for times and locations*

[Hippo Feed and Talk](#) – Watch as our biologists provide a Q & A and toss treats to Nile Hippos, Button and Genny.

[Meet the Divers!](#) – Meet members of Adventure Aquarium's dive team and find out what keeps them moving through the water.

[Ocean Realm Odyssey](#) – Hear from an Adventure Aquarium cast member, as they introduce you to the inhabitants of Ocean Realm, including sea turtles, Shark Rays, Great Hammerheads and more!

[Penguin Feeding & Talk](#) – Penguins eat 20 percent of their body weight in one sitting! Watch it happen live during one of our daily feeds and hear our biologists talk about these fascinating creatures.

[Secrets of Shark Realm](#) - Learn from a cast member all of the secrets of our second largest exhibit and the sharks that inhabit it.

**For more information, visit AdventureAquarium.com
Call 800.616.JAWS to make a group reservation**

After Your Visit – Questions to Ask and Things to Do:

1. Search the internet for the terms “Sustainable Seafood” or “Seafood Watch” and find how you and your family can eat in a more environmentally responsible way.
2. Find an ocean or waterway cleanup project and participate.
3. Have your students host an “Invasive Species Awareness Day.” Have students research an invasive species, create posters about their animals and hang them around the school.
4. Discuss with your students the role that zoos and aquariums play in regards to endangered species. Do they think that having places to see these animals increases their desire to protect them? Do they think that they might want to work towards saving an endangered species one day?